

# SPECIFICATION

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## ADHESIVE METHOD AND APPARATUS FOR GUIDING NEEDLES

### Background of Invention

- [0001] In recent years, handheld medical imaging transceivers, such as ultrasound and gamma ray transceivers, have been used extensively for various medical imaging situations. Many clinics will use multiple transceivers. Some handheld transceivers are designed for external use, while trans-rectal and trans-vaginal transceivers are designed for use within body cavities.
- [0002] In the past, each type of transceiver may require a different needle guide and/or a different mounting bracket to which a needle guide is attached. With numerous transceivers and numerous needle guide brackets, a medical imaging professional may become confused and frustrated as to what needle guide goes with which bracket and which transceiver, thereby reducing the efficiency of operations of the clinic.
- [0003] Consequently, there exists a need for improved methods and apparatus for guiding needles in an efficient manner.

### Summary of Invention

- [0004] It is an object of the present invention to provide an apparatus and method for guiding a needle in an efficient manner.
- [0005] It is a feature of the present invention to utilize a sterile sheath with an internal adhesive for affixing to a transceiver.
- [0006] It is another feature of the present invention to include a removable internal adhesive cover inside said sterile sheath to facilitate ease of insertion of a medical

imaging transceiver therein.

[0007] It is another feature of the present invention to include a sterile sheath with a needle guide attached thereto.

[0008] It is another feature of the present invention to include a needle guide adapter bracket attached to the sterile sheath.

[0009] It is an advantage of the present invention to achieve improved efficiency in guiding needles.

[0010] The present invention is an apparatus and method for guiding needles designed to satisfy the aforementioned needs, provide the previously stated objects, include the above-listed features, and achieve the already articulated advantages. The present invention is carried out in a "technician burden-less" manner in a sense that the burden on a medical imaging of coupling one of a multiple of needle guides with one of a multiple of mounting brackets for one of a multiple of transceivers, has been greatly reduced.

[0011] Accordingly, the present invention is an apparatus and method including a sterile sheath which has a structure coupled thereto for assisting in affixing a needle guide to a transceiver.

## Brief Description of Drawings

[0012] The invention may be more fully understood by reading the following description of the preferred embodiments of the invention, in conjunction with the appended drawings wherein:

[0013] Figure 1 is a perspective view of the present invention prior to attachment to a transceiver.

[0014] Figure 2 is a perspective view of an alternate embodiment of the present invention which includes a bracket disposed on the transceiver.

[0015] Figure 3 is a partially exploded perspective view of the apparatus of Figure 1.

[0016] Figure 4 is a partially exploded perspective view of an alternate embodiment of

the needle guide of Figure 2.

## Detailed Description

[0017] Now referring to the drawings wherein like numerals refer to like matter throughout, and more specifically referring to Figure 1, there is shown a needle guide/transceiver assembly 100 of the present invention, which includes a needle guide 102. Needle guide 102 is coupled to medical imaging device 103, which could be an ultrasound transducer, gamma ray transceiver or other imaging device. Needle guide 102 is preferably a plastic material, such as ABS or equivalent; however, other materials, such as aluminum, surgical steel, and any other suitable material could be substituted. Needle guide 102 is coupled to sterile sheath 104 by exterior adhesive 106. Sterile sheath 104 can be a latex sheath or other material known for use with sheaths and sterile sheaths for medical imaging transceivers. Exterior adhesive 106 can be a contact adhesive applied to sterile sheath 104 or needle guide 102 or it may be adhesive tape. It should be understood that the exterior adhesive 106 can be replaced with an ultrasonic weld or any similar means of attaching matter to a sheath.

[0018] Now referring to Figure 2, there is shown a needle guide assembly of the present invention, having a needle guide 202 coupled through a sterile sheath 204 to a transceiver mounting bracket 210 disposed on a medical imaging device 103.

[0019] Now referring to Figure 3, there is shown an exploded view of the needle guide system of Figure 1, which includes an internal adhesive material 312 disposed on the inside of sterile sheath 104. Internal adhesive material 312 is disposed adjacent to, but on opposing sides of, sterile sheath 104 from exterior adhesive 106. Internal adhesive material 312 is covered by cover for internal adhesive material 314. Cover for internal adhesive material 314 is shown as an integral part of elongated adhesive cover removing pull 108. In a preferred embodiment, elongated adhesive cover removing pull 108 is a strip of material which is folded over at the bottom end to form cover for internal adhesive material 314. It should be understood that cover for internal adhesive material 314 and elongated adhesive cover removing pull 108 need not be integral, nor need they be the same material.

[0020]

Now referring to Figure 4, there is shown an adapter 402 having a protruding

central portion 404 and non-protruding area 406. Adapter 402 can be attached to sterile sheath 204 in a manner similar to the way needle guide 102 is attached to sterile sheath 104. Adapter 402, after it has been affixed to sterile sheath 204, may be coupled to transceiver mounting bracket 210 by mating with a surface structure 408 disposed on transceiver mounting bracket 210.

[0021] In operation, the apparatus and method of the present invention as described and shown in Figures 1 and 3, could function as follows:

[0022] Medical imaging device 103 is inserted into sterile sheath 104. Elongated adhesive cover removing pull 108 is pulled to expose internal adhesive material 312. Internal adhesive material 312 is then pressed against medical imaging device 103. Needle guide 102, which has been previously attached to sterile sheath 104 via exterior adhesive 106 or other means, can be used for normal clinical activities.

[0023] With respect to the embodiment of the present invention shown in Figures 2 and 4, the system could function as follows:

[0024] Transceiver mounting bracket 210 is mounted on medical imaging device 103. The medical imaging device 103 is inserted into sterile sheath 204. Adapter 402, which has been previously mounted on sterile sheath 204 as discussed above, is mated to surface structure 408. Adapter 402, with its protruding central portion 404 and non-protruding area 406, then can be mated with needle guide 202, thereby coupling needle guide 202 with medical imaging device 103.

[0025] Throughout this description, reference is made to a medical imaging system, because it is believed that the beneficial aspects of the present invention would be most readily apparent when used in connection with medical imaging; however, it should be understood that the present invention is not intended to be limited to imaging, and should be hereby construed to include other medical tools, equipment and methodologies as well, where it is desirable to guide a needle.

[0026] While the figures and the detailed description herein are focused upon a general-purpose abdominal transceiver, it is intended that the present invention be read to include within the claims endo-cavity transceivers and any other medical imaging device irrespective of its manner of use.

[0027] It is thought that the method and apparatus of the present invention will be understood from the foregoing description and that it will be apparent that various changes may be made in the form, construct steps, and arrangement of the parts and steps thereof, without departing from the spirit and scope of the invention or sacrificing all of their material advantages. The form herein described is merely a preferred exemplary embodiment thereof.

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